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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,635	05/18/2000	OLIVIER BALLEVRE	P00.0164	7617
29157 75	590 03/10/2005		EXAMINER	
BELL, BOYD & LLOYD LLC P. O. BOX 1135			LUKTON, DAVID	
CHICAGO, IL 60690-1135			ART UNIT	PAPER NUMBER
•			1653	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)			
		09/508,635	BALLEVRE ET A	L.		
	Office Action Summary	Examiner	Art Unit			
		David Lukton	1653	<u> </u>		
7 Period for F	he MAILING DATE of this communicati Reply	on appears on the cover sheet	with the correspondence a	ddress		
THE MA - Extension after SIX - If the per - If NO per - Failure to Any reply	TENED STATUTORY PERIOD FOR ILING DATE OF THIS COMMUNICAT as of time may be available under the provisions of 37 (6) MONTHS from the mailing date of this communicate of or reply specified above is less than thirty (30) day or reply is specified above, the maximum statutory reply within the set or extended period for reply will, is received by the Office later than three months after that term adjustment. See 37 CFR 1.704(b).	FION. CFR 1.136(a). In no event, however, may tion. s, a reply within the statutory minimum of y period will apply and will expire SIX (6) Now the statute. Cause the application to become the statute.	y a reply be timely filed thirty (30) days will be considered time MONTHS from the mailing date of this e ABANDONED (35 U.S.C. § 133).	ely. communication.		
Status						
1) 🛛 Re	esponsive to communication(s) filed or	n 20 December 2004.				
•	•	This action is non-final.				
3)□ Si						
Disposition	of Claims					
4a 5)□ CI 6)⊠ CI 7)□ CI	aim(s) 30,32,35 and 37-41 is/are pend Of the above claim(s) 33 and 34 is/al aim(s) is/are allowed. aim(s) 30,32,35 and 37-41 is/are rejectation aim(s) is/are objected to. aim(s) are subject to restriction	re withdrawn from considerati	on.			
Application	Papers					
10)□ Th Ap Re	e specification is objected to by the Exe drawing(s) filed on is/are: a)[plicant may not request that any objection eplacement drawing sheet(s) including the e oath or declaration is objected to by	accepted or b) objected to the drawing(s) be held in abe correction is required if the draw	yance. See 37 CFR 1.85(a). ring(s) is objected to. See 37 C			
Priority und	ler 35 U.S.C. § 119					
a)□ . 1. 2. 3.	knowledgment is made of a claim for fall b) Some * c) None of: Certified copies of the priority doc Copies of the certified copies of the application from the International the attached detailed Office action fo	uments have been received. uments have been received in the priority documents have be Bureau (PCT Rule 17.2(a)).	n Application No een received in this Nationa	ıl Stage		
Attachment(s)						
2) Notice of 3) Informati	References Cited (PTO-892) Draftsperson's Patent Drawing Review (PTO-9 on Disclosure Statement(s) (PTO-1449 or PTO of s)/Mail Date	48) Paper I	ew Summary (PTO-413) No(s)/Mail Date of Informal Patent Application (PT 	⁽ O-152)		

Pursuant to the directives of the amendment filed 12/20/04, claim 30 has been amended.

Claims 30, 32-35 and 37-41 remain pending. Claims 33-34 are withdrawn from consideration. Claims 30, 32, 35 and 37-41 are examined in this Office action.

Applicants' arguments filed 12/20/04 have been considered and found persuasive in part. The rejection of claims 30, 32, 37-40 as unpatentable over Vickery ('820) is withdrawn.

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The following is a quotation of the first paragraph of 35 U.S.C. §112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification fails to teach a skilled physiologist how to use protein hydrolyzates and amino acids to promote "recovery" of an organ. As stated in *Ex parte Forman* (230 USPQ 546, 1986) and *In re Wands* (8 USPQ2d 1400, Fed. Cir., 1988), the factors to consider in evaluating the need (or absence of need) for "undue experimentation" are the following:

quantity of experimentation necessary, amount of direction or guidance presented, presence or absence of working examples, nature of the invention, state of the prior art, relative skill of those in that art, predictability or unpredictability of the art, and breadth of the claims.

As for the "nature of the invention", it is asserted in the specification (page 8, line 17+) that the disclosed protein hydrolyzates can be used to repair damage to the intestine. Also asserted (page 8, line 20+) is that the disclosed protein hydrolyzates can be used to treat Crohn's disease, diarrhea, colitis or sepsis, and further, that the disclosed protein hydrolyzates can be used to reverse damage to gut epithelial tissue that has resulted from a surgical procedure, or from any other cause. Though not specifically stated, the implication is that various diseases such as hepatitis, cirrhosis of the liver, and kidney infection can be Such diseases cause damage to organ tissue, and if the claimed successfully treated. method is to be effective, the protein hydrolyzates must be effective not only to accelerate wound healing, but overcome the pathological basis of the organ damage. As for the "working examples", the specification discloses results which are consistent with the conclusion that if one administers a mixture of all 20 genetically encoded amino acids to a mammal, the relative weights of the stomach, intestine, duodenum jejunum, liver, gastrocnemius, soleus, and extensor will vary slightly if the ratio of amino acids is altered. This assertion is somewhat suspect, since no statistical analysis has been presented. For example, in the case of the duodenum, the standard deviation would not have to be high at all in order to justify the conclusion that the results are not statistically significant.

Without further information as to the variability in the data (that is presented on page 17), it is not particularly meaningful. The results are also not meaningful, since the amount of lipids and minerals (see page 14) were varied simultaneously with the amino acid composition. Furthermore, the total amount of amino acids varies from from feed mixture to the next. Thus, even if it turns out that the results on page 17 are statistically significant, it has not been determined the extent to which, or even whether, the observed changes in organ weights were the result of varying the amino acid composition, rather than the lipids and minerals. It may be the case that the changes in organ weights were due to changes in the total amount of amino acids administered, rather than variations in the amino acid content. Or maybe the changes in organ weights were due to changes in differential metabolism of the peptide fragments which were produced by the different hydrolysis methods (hydrolyzate 1, hydrolyzate 2 or hydrolyzate 3). Thus, in the disclosed experiments (specification) several different variables have been altered simultaneously, and it is impossible to determine the effects of any one of them taken alone. Furthermore, there is no control experiment. It has not been stated what the results are supposed to be relative to. If the feed compositions (feed 1 - feed 5) were given to rats which were already exhibiting a positive nitrogen balance, would there be any effect at all of the different feeds? Even if it turns out that the results on page 17 are statistically significant, and if could be determined what the cause (among the numerous variables) of the variance in organ weights might be, the results are still not meaningful with respect to the claimed invention. The

claimed invention is not drawn to a method of randomly altering the weights of selected organs. And even if the claims were drawn e.g., to a method of increasing the weight of the stomach, it is not at all clear how one would proceed. It may be true that if one uses, e.g., feed #5 rather than feed #1, one will obtain a slightly higher weight of the stomach. If it were to turn out that this difference is due to the amino acid content, rather than to the lipids and minerals (or one of the other variables), it would still not be evident how one would translate the results of feed #5 versus feed #1 into a general method of increasing stomach weight. It is not apparent which amino acids are necessary, or which are sufficient; it is not made clear wat degree of hydrolysis will produce the intended results, and which will not. And even if it were true that the specification taught the skilled artisan how to increase the weight of specific organs, there is no teaching as to how that teaching would translate into a showing of enablement for the claimed invention, which is that of using protein hydrolyzates and amino acids to promote "recovery" of an organ.

The results of a second experiment are presented on pages 21-24. What is shown here is that the rate of protein synthesis varies somewhat depending on which of the five feeds is used. The shortcomings of the experimental results described on page 17 apply here as well. First, the results are not statistically significant in the absence of further information as to the variability that is observed from one experiment to the next (for a given feed composition). Second, there are several different variables (with respect to the feed composition itself) which are altered simultaneously. And third, even if there were a clear

assertion as to the specific variable that is supposed to correlate with the increased protein synthesis, and even if there were an experimental basis for such an assertion, this would have little relevance to the claimed invention, which is that of using protein hydrolyzates and amino acids to promote "recovery" of an organ. The specification has presented no evidence that any such correlation exists between rate of protein synthesis, and recovery of an organ from wounding, physical trauma, or damage from an inflammatory condition. The reality is that one cannot "predict" such "recovery" based on rates of protein synthesis.

The following references discusses the issue of statistical analysis, and more importantly the issue of artifacts or invalid conclusions that can be drawn from an inadequate experimental design, or flawed assumption:

Ludbrook (Clinical and Experimental Pharmacology and Physiology 28 (5-6) 488-92, 2001)

Bryant (Pediatric Allergy and Immunology 9 (3) 108-15, 1998)

Bezeau (Journal of Clinical and Experimental Neuropsychology 23 (3) 399-406, 2001)

Bolton (Journal of Clinical Pharmacology 38 (5) 408-12, 1998)

Willenheimer (Progress in Cardiovascular Diseases 44 (3) 155-67, 2001)

Chung (Plastic and Reconstructive Surgery 109 (1) 1-6, 2002)

Atkinson (Chronobiology International 18 (6) 1041-53, 2001).

While several experiments have been conducted, there is no apparent relationship between

the results of those experiments, and the claimed invention. The claimed invention encompasses repair of damage to the intestines, treatment of Crohn's disease, treatment of diarrhea, treatment of colitis or sepsis, treatment of hepatitis, treatment of cirrhosis of the liver, and kidney infection, as well as reversal of damage to gut epithelial tissue. There is no evidence that increasing DNA synthesis or even increasing organ weight engenders a method of promoting wound healing, or of successfully treating a patient whose organs have been damaged by disease, surgery or trauma. "Undue experimentation" would be required to practice the claimed invention.

In response to the foregoing, applicants have argued that the term "recovery" is definite in scope and meaning. However, even if this is true, it does not follow therefrom that the skilled artisan can predict repair of damage to the intestines, treatment of Crohn's disease, treatment of diarrhea, treatment of colitis or sepsis, treatment of hepatitis, treatment of cirrhosis of the liver, and kidney infection, as well as reversal of damage to gut epithelial tissue on the basis of increased protein or DNA synthesis.

The rejection is maintained.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are drawn to a method of promoting "recovery" of an organ. It is unclear

as to what the organ is recovering from. The the term could potentially encompass recovery from a wound, physical trauma, or a disease. Despite the amendment, the line between what is encompassed and what is not encompassed remains unclear. For example, one organ is the brain. Is "recovery" from a headache encompassed, or recovery from emotional stress, or recovery from excessive alcohol consumption? It is suggested that the claim be amended to make clear what the mammal is recovering from.

The following is a quotation of 35 USC §103 which forms the basis for all obviousness rejections set forth in the Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made, absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Nakamura (*J. Dairy Sci.* 78 (6) 1253-1257, 1995) or Masuda (*American Institute of Nutrition* 126(12) 3063-3068, 1996).

As indicated previously, Nakamura discloses that peptides obtained from sour milk exhibit antihypertensive activity. Nakamura does not disclose that antihypertensive agents will

promote "recovery" of a damaged heart in hypertensive patients. Masuda provides a similar teaching.

In response to the foregoing, applicants have argued that the peptides in the references were isolated, and implies that the hydrolyzed milk proteins of claim 30 must be a complex mixture. However, in claim 30, there is no upper or lower limit on the number of peptides that can or must be present.

The rejection is maintained.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Gordon (USP 5,166,132) or Tomita (USP 5,313,873).

As indicated previously, Gordon and Tomita both teach that milk protein hydrolyzates can be used to treat skin. Neither reference uses the phrase "recovery of an organ". However, the skin is an organ of sorts, and if the hydrolyzates are indeed effective to relieve dermatological conditions such as dermatitis, burns and bruises, then this would correspond to "recovery of an organ". No traversal of this rejection has been offered, and so it is maintained without further comment.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Gordon (USP 5,166,132) or Tomita (USP 5,313,873) in view of Verma (USP 6,645,942).

The teachings of Gordon and Tomita are indicated above. Neither reference discloses that skin is an organ. Verma discloses (col 4, line 47) that skin is an organ. Verma does not disclose the use of milk protein hydrolyzates to promote recovery of an organ.

Applicants have argued that Verma is not relevant to the claimed invention, because it relates to products for surgical implantation. However, Verma is cited only for its teaching that skin is an organ. The rejection is maintained.

Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Smith (WO 97/16460).

As indicated previously, Smith discloses that a case in hydrolyzate has growth promoting activity. Smith does not explicitly state that the case in hydrolyzate will promote "recovery of an organ". However, one of ordinary skill would expect that growth of organs will be promoted, those of infants, as well as those of adults who have suffered damage to an organ as a result of disease, injury or surgical procedure.

In response to the foregoing, applicants have argued that because Smith has identified growth factors within the milk protein hydrolyzates, the disclosed hydrolyzates do not qualify as a "specific milk protein hydrolyzate". However, the peptides and mixtures disclosed in Smith do qualify as "specific milk protein hydrolyzates", since they are both hydrolyzates, and specific.

The rejection is maintained.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Jolles (USP 4,716,151).

As indicated previously, Jolles discloses that tripeptides obtained from hydrolysis of milk proteins will stimulate the immune system. Jolles does not disclose that the recited tripeptides will promote recovery of an organ in an immune compromised patient.

In response to the foregoing, applicants have argued that the reference only suggests administering a single peptide, and not a combination of two or more. First, the instant claims do not preclude the possibility of administering a single peptide, as long as it was obtained by hydrolyzing a protein present in milk. And second, the pharmacologist of ordinary skill would have had motivation to combine two or more of the disclosed peptides for additive effects.

Thus, the claims are rendered obvious.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Ballard (USP 5,679,771) in view of Stalker (USP 5,661,123).

Ballard discloses (e.g., col 2, line 6+; col 2, line 26+; col 1, line 30+) recovery from Crohn's disease and colitis, and recovery from surgical procedures by administering IGF-1 and analogs thereof. Ballard does not disclose a method of promoting recovery by administering hydrolyzed milk proteins. Stalker discloses (col 3, line 50)

administration of hydrolyzed milk proteins to patients who have "elevated protein requirements". Stalker further discloses (e.g., col 3, line 40; col 5, line 47) that persons afflicted with Crohn's disease have "elevated protein requirements" and would benefit from the hydrolyzed milk proteins. While disclosing that persons suffering from Crohn's disease would benefit from the hydrolyzed milk proteins, Stalker stops short of asserting that the inflammation associated with the Crohn's disease will actually be mitigated.

Given that both references assert that benefits will accrue to patients suffering from Crohn's disease, the medical practitioner of ordinary skill would have been motivated to combine the IGF-1 analogs of Ballard with the hydrolyzed milk proteins of Stalker for additive effects.

Viewed from another perspective, the medical practitioner of ordinary skill recognizes that proposed treatment regimens are not always 100% effective.

Thus, the medical practitioner would expect the IGF-1 analogs of Ballard to alleviate the inflammation of the Crohn's disease, but at the same time, the treatment might not be 100% effective, and certainly will not provide an instantaneous cure. Thus, the medical practitioner would have been motivated to administer the IGF-1 analogs to alleviate the Crohn's disease, while at the same time administering the milk protein hydrolyzates in order to alleviate the protein malnutrition associated with the disease.

By administering the IGF-1 analogs in conjunction with the hydrolyzed milk protein, the medical practitioner will succeed in promoting recovery of the intestines. The claims are

thus rendered obvious.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Qu, Zhensheng (*Journal of Nutrition* 126(4) 906-912, 1996) in view of Stalker (USP 5,661,123).

Qu discloses that protein malnutrition is manifest in various ways both biochemically and physiologically; one of those manifestations is suboptimal liver growth. Qu further discloses that the deficiency in liver growth which accompanies protein malnutrition can be reversed by administering proteins, such as casein; in other words, proteins promote "recovery" of the liver from protein malnutrition. Qu does not disclose that hydrolyzed milk proteins can serve as a protein source.

As indicated above, Stalker discloses (col 3, line 50) administration of hydrolyzed milk proteins to patients who have "elevated protein requirements". Advantages of the hydrolyzed milk protein formula are given at col 2, line 48+. Among the advantages are that the nutritional composition is ready to use, nutritionally complete and is appropriate for patients with elevated protein needs. Certainly, a patient who is suffering from protein deficiency has elevated protein needs and would benefit from the invention of Stalker.

Thus, it would have been obvious to one of ordinary skill that the hydrolyzed milk protein formula of Stalker will promote recovery of the liver from protein malnutrition

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Gray (USP 5,723,446).

Gray discloses (col 2, line 57+) a method of treating patients suffering from burns, and from surgical procedures. The method calls (col 3, line 27) for administration of hydrolyzed milk protein.

Gray does not explicitly state that the hydrolyzed milk proteins will promote recovery of an organ. However, skin is an organ; for the patient suffering a burn to the skin, the reference implies "recovery" of that organ. Similarly, the patient who has undergone a surgical procedure has suffered "damage" to the organ that was the focus of the procedure; administration of the hydrolyzed milk proteins will promote recovery of the organ that has been damaged by the surgery.

Thus, the claims are rendered obvious.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Gray (USP 5,723,446) in view of Van Leeuwen (USP 6,001,878).

Gray discloses (col 2, line 57+) a method of treating patients suffering from burns, and from surgical procedures. The method calls (col 3, line 27) for administration of hydrolyzed milk protein. The reference also suggests (col 3, line 47; col 5, line 56) administration of glutamine in addition to the hydrolyzed milk protein. Gray does not

disclose that glutamine will promote recovery of an organ. Van Leeuwen discloses that glutamine will promote recovery of the liver. Van Leeuwen does not disclose administration of hydrolyzed milk proteins.

Thus, it would have been obvious to one of ordinary skill that the nutritional formula of Gray (which contains both hydrolyzed milk proteins and glutamine) will promote recovery of the liver.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Gray (USP 5,723,446) in view of Panigrahi (USP 5,981,590).

Gray discloses (col 2, line 57+) a method of treating patients suffering from burns, and from surgical procedures. The method calls (col 3, line 27) for administration of hydrolyzed milk protein. The reference also suggests (col 3, line 47; col 5, line 56) administration of glutamine in addition to the hydrolyzed milk protein. Gray does not disclose that glutamine will promote recovery of an organ. Panigrahi discloses that glutamine will promote recovery of the intestines. Panigrahi does not disclose administration of hydrolyzed milk proteins.

Thus, it would have been obvious to one of ordinary skill that the nutritional formula of Gray (which contains both hydrolyzed milk proteins and glutamine) will promote recovery of the intestines.

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Claims 30, 32, 35 and 37-41 are rejected under 35 U.S.C. §103 as being unpatentable over Boza, Julio (*Journal of Pediatric Gastroenterology and Nutrition* 22(2) 186-193, 1996).

Boza discloses that the weight and protein content of the jejunum mucosa is reduced following starvation, and that the hydrolase activity of the mucosa also is also reduced in starvation. Boza also discloses that these effects of starvation are reversed following administration of hydrolyzed milk proteins. Boza does not disclose that administration of hydrolyzed milk proteins will promote recovery of an organ. However, given that the weight and protein content of the jejunum mucosa is increased following administration of hydrolyzed milk proteins, and given that the hydrolase activity of the jejunum mucosa is also increased following administration of milk protein hyrolyzates, it is evident that the disclosed hydrolyzates will promote "recovery" of the jejunum from the effects of starvation.

Thus, the claims are rendered obvious.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). The practice of automatically extending the shortened statutory period an additional month upon filing of a timely first response to a final rejection has been discontinued by the Office. See 1021 TMOG 35.

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE

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END OF THE THREE MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED AND ANY EXTENSION FEE PURSUANT TO 37 CFR 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lukton whose telephone number is 571-272-0952. The examiner can normally be reached Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber, can be reached at 571-272-0925. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

DAYID LURTON
PATENT EXAMINER
GROUP SEX